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IN FOCUS

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Klamath River Restoration and Dam Removal

The Klamath River Basin (**Figure 1**)—a 12,000 square mile area on the California-Oregon border—is a focal point for discussions on water allocation and species protection. These issues have generated conflict among farmers, Indian tribes, fishermen, water project and wildlife refuge managers, environmental groups, hydropower facility operators, and state and local governments. This In Focus provides background on the basin, with a focus on the proposed removal of four Klamath River dams.

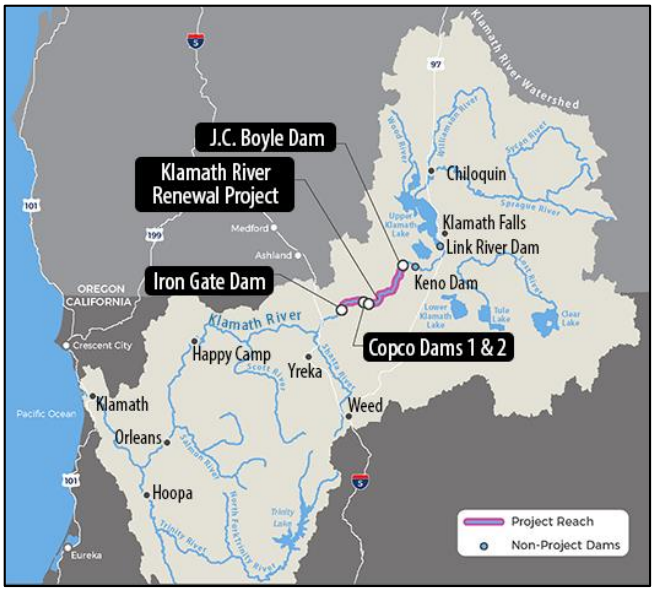
Background

Much of the Upper Klamath Basin relies on economic activity supported by irrigated agriculture and the Bureau of Reclamation's (Reclamation's) Klamath Project within the U.S. Department of the Interior (DOI). Other farmers and ranchers also rely on basin water supplies not associated with the Klamath Project (*off project*). Further, six national wildlife refuges rely on basin waters to sustain migratory bird habitat, and several Native American tribes historically depended on lower and upper basin fish species.

Mitigating the effects of water management, habitat alteration, and other factors on listed species under the Endangered Species Act (ESA; 16 U.S.C. §§1531 et seq.) is a perennial issue in the basin. Two species of upper basin fish are currently listed as endangered under the ESA—the Lost River sucker and the shortnose sucker. In the lower basin, the coho salmon is listed as threatened. Conflicts in the basin first came to a head in 2001, when, as a result of previous biological opinions, Reclamation severely curtailed water deliveries to the Klamath Project to provide more water for endangered fish. Subsequent issues, including a major fish kill of Chinook salmon on the Lower Klamath River in 2002, resulted in federally led settlement talks in the 2000s.

The basin contains seven dams on the Klamath River and its tributaries, built between 1918 and 1962. Six of these dams are owned by PacifiCorp, a regulated utility. These dams are known collectively as the Klamath Hydroelectric Project (KHP). Historically, all but one of the dams have produced hydroelectric power for the basin, including low-cost power for Klamath Project irrigators. The original Federal Energy Regulatory Commission (FERC) license to operate the KHP expired in 2006. In 2004, PacifiCorp applied for relicensing of the project, and, in 2007, FERC staff issued a final environmental impact statement for the application. FERC analyzed various alternatives for the application, ultimately recommending a new license with mandatory prescriptions to create fish ladders that would cost hundreds of millions of dollars to implement and result in net operating losses for the project. At this time, PacifiCorp entered into basin settlement negotiations with stakeholders and continued to operate the project under temporary annual licenses.

Figure 1. Klamath River Basin and Proposed Dam Removal Project Reach



Source: Klamath River Renewal Corporation, 2018.
Note: The figure identifies four dams proposed for removal.

Klamath Settlement Agreements

In 2010, the Secretary of the Interior, governors of Oregon and California, PacifiCorp, and 44 other parties announced two interrelated settlement agreements intended to resolve long-standing issues in the basin: the Klamath Basin Restoration Agreement (KBRA) and the Klamath Hydroelectric Settlement Agreement (KHSA). The KBRA proposed actions to restore Klamath fisheries and assurances for water deliveries to wildlife refuges and project irrigators, among other things. The KHSA laid out a process for removal of four of PacifiCorp's dams; after a secretarial determination on dam removal, the dams would be transferred to DOI, which would oversee decommissioning. The dam removal project would be one of the largest and most complex ever undertaken. A third agreement involving off-project irrigators in the Upper Klamath Basin was finalized in 2014.

The Klamath settlement agreements were contingent on passage of federal legislation authorizing numerous new federal activities in the basin. Legislation approving the agreements was introduced and received hearings in the 113th and 114th Congress but was not enacted. Despite this, some work under the KBRA and KHSA has proceeded under existing authorities: studies to inform the secretarial determination on dam removal were completed (the

determination was not made, due to lack of authority), and some actions under the KBRA have been implemented under existing authorities. After some argued that Congress was unlikely to act on the agreements, removal of the Klamath River dams proceeded on a track that no longer requires congressional action, as discussed below.

Recent Events: Transfer and Removal of Lower Klamath River Dams

In 2016, the parties amended KHSA to not require the transfer of dams to DOI, thus avoiding the need for congressional authorization. The amended KHSA lays out a process for PacifiCorp to transfer the dams slated for removal to a new nonprofit entity, the Klamath River Renewal Corporation (KRRC). Under the KHSA, KRRC is to be funded by PacifiCorp surcharges in Oregon ($184 million) and California ($16 million), as well as bond funding from the State of California ($250 million). KRRC is led by a 15-member board appointed by the governors of California and Oregon, the Karuk and Yurok tribes, and conservation and fishing groups.

In 2016, PacifiCorp and KRRC applied for FERC approval to transfer the license for the *Lower Klamath Project* (i.e., the four dams slated for removal) and to surrender and decommission the project. PacifiCorp was to continue to operate the project until dam removal began. KRRC timelines anticipated FERC approval in 2019 or 2020, with dam removal beginning in 2022. On July 16, 2020, FERC issued an order conditionally approving a partial transfer of the license for the Lower Klamath Project. FERC approved a partial transfer of the project license from PacifiCorp to KRRC, requiring that PacifiCorp remain a co-licensee. FERC explained that public interest requires PacifiCorp to remain as a co-licensee because it has experience operating the project and "additional [financial] resources as well as experience in removing a major project." This order does not include the surrender and removal of the dams as proposed by the KRRC; FERC determined this is to be a separate ruling.

Following the ruling, PacifiCorp issued a statement asserting that FERC's partial approval "denies the customer protections" that it negotiated in the amended KHSA. Based on this, some contend that the ruling poses uncertainties for the dam removal plan. PacifiCorp has pledged to reconvene settlement parties to determine next steps and noted its belief that negotiations remain preferable to the FERC relicensing process. Observers note that if PacifiCorp terminates involvement with the amended KHSA, it would still need to pursue the relicensing process that has been on hold since 2006, and which would likely be more expensive than dam removal as a co-licensee.

Dam Removal Considerations

KHSA parties and other interests support the removal of the Klamath dams due to the potential benefits for basin fisheries, habitat, and water quality. Specifically, DOI projected that dam removal would open more than 420 miles of historic salmon spawning habitat and improve water quality. Further, DOI noted that it would lower mortality at the generators, eliminate reservoirs that produce temperature and dissolved-oxygen problems for salmonids, and avoid the need to implement other costly mitigation measures. Some scientists question these points and suggest that conservation benefits associated with dam removal are uncertain. Removal of the Klamath dams has been opposed by some, in particular some of the basin's local officials in Oregon and California. Opponents argue against the loss of hydropower, recreational, and flood control benefits associated with the dams, and worry about flooding, pollution, and other hazards related to removal.

Near the end of the Obama Administration, Secretary Sally Jewell voiced DOI's formal support for the 2016 FERC applications to transfer and remove the KHP dams, in part based on federal studies of dam removal dating to the 2010 KHSA. These studies analyzed dam removal alternatives and impacts, and informed dam removal plans by the KRRC. The most recent dam removal plan before FERC was laid out in a *Definite Plan Report* published by KRRC in 2018. The plan would draw down KHP reservoirs over the course of 2-3 months, with the four main dam facilities removed simultaneously over the 20 months thereafter. The timeline and approach in the report is reportedly intended to minimize high suspended sediment loads that could negatively affect aquatic resources.

Costs are another concern of dam removal for stakeholders. As of early 2020, total dam removal project costs (including project reserves) were estimated at $445 million. The amended KHSA includes a maximum cost cap of $450 million. Thus while costs are still below their required threshold, they are approaching the level at which parties might have to reconvene to secure additional funding.

Significance of Klamath Dam Removal

Removal of the Klamath Dams is a historic undertaking that has received widespread attention due to the project's magnitude. Never before have so many large dams been removed from a single river, at one time. Many are interested in the project as a proof-of-concept for other complex dam removals. Some have expressed hope that the amended KHSA model—in which a private dam owner transfers dams for removal in exchange for liability protections—might be used for other dam removals. FERC's ruling could render this less likely. However, PacifiCorp and other parties may yet come to a revised agreement to remove the dams within FERC's conditions. Regardless, if the Klamath dam removal effort goes forward, the cost of the project and status of restoration are likely to receive close scrutiny.

Congressional interest in dam removal relates to what role (if any) the federal government should have in studying and executing specific projects, FERC's role in approving the proposed removal of certain nonfederally owned dams, and what, if any, federal incentives or authorities should be available for the removal (or maintenance) of aging dams.

Charles V. Stern, Specialist in Natural Resources Policy
Pervaze A. Sheikh, Specialist in Natural Resources Policy

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